

*Application No. 09/482,717
Reply to Office Action of Feb. 9, 2005
Amendment dated May. 9, 2005*

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel Claims 11-34, amend Claim 1, and add Claims 35-44 as follows:

1. (Currently Amended) A method for performing echo cancellation within a switching center of a communication network, said switching center being coupled to a plurality of local user devices and a plurality of external transmission media, said method comprising:
 - 5 (a) providing a pool of echo cancellation units within said switching center;
 - (b) coupling a first local user device to a first external transmission medium as part of a communication connection between the first local user device and a remote user device;
 - (c) after the first local user device is coupled to the first external transmission
10 medium, monitoring the first external transmission medium for at least one of echo cancellation activity and echo energy during the communication connection between the first local user device and the remote user device;
 - (d) in response to the detected at least one of echo cancellation activity and echo energy being above a determined threshold, allocating a first echo cancellation unit from
15 the pool of echo cancellation units to the communication connection;
 - (e) in response to the detected at least one of echo cancellation activity and echo energy thereafter falling below the determined threshold, discontinuing the allocation of the first echo cancellation unit to the communication connection;
 - (f) thereafter monitoring the first external transmission medium for at least one of echo cancellation activity and echo energy during the communication connection between the first local user device and the remote user device; and

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(g) when the detected at least one of echo cancellation activity and echo energy is above a determined threshold, again performing echo cancellation on the communication connection.

2. (Previously Presented) The method claimed in Claim 1, wherein the again performing step (f) is performed and further comprising:

thereafter monitoring the first external transmission medium for at least one of echo cancellation activity and echo energy during the communication connection between the first local user device and the remote user device; and

when the detected at least one of echo cancellation activity and echo energy falls below a determined threshold, again discontinuing echo cancellation on the communication connection.

3. (Previously Presented) The method claimed in Claim 1, wherein:
in the discontinuing step, the at least one of echo cancellation activity and echo energy is echo cancellation activity.

4. (Previously Presented) The method claimed in Claim 1, wherein:
said first external transmission medium includes a trunk;
wherein:
said first local user device includes a telephone unit connected to said switching center via a local loop; and wherein:
said step of coupling includes providing a communication path between said telephone unit and said trunk.

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5. (Previously Presented) The method claimed in Claim 1, wherein:
said step of monitoring includes receiving a signal from said first local user device indicating that echoes are being audibly perceived by a user thereof.

6. (Previously Presented) The method claimed in Claim 1, wherein:
the at least one of echo cancellation activity and echo energy is echo energy and
said step of monitoring includes allocating a call classifier to said communication connection and receiving an indication from said call classifier that echoes above a
5 predetermined power level are being received from said first external transmission medium.

7. (Previously Presented) The method claimed in Claim 1, wherein:
the at least one of echo cancellation activity and echo energy is echo cancellation activity and said step of monitoring includes assigning an echo cancellation unit to said communication connection and receiving an indication from said echo cancellation unit
5 that echoes above a predetermined power level are being received from said first external transmission medium; and
said step of allocating includes allowing said echo cancellation unit to continue performing echo cancellation for said communication connection for the duration thereof.

8. (Original) The method claimed in Claim 1, wherein:
said pool of echo cancellation units includes at least one multi-channel hardware echo cancellation device.

9. (Original) The method claimed in Claim 1, wherein:
said pool of echo cancellation units includes a programmable digital processing device.

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10. (Previously Presented) The method Claimed in Claim 6, when the detected at least one of echo cancellation activity and echo energy fails to exceed the determined threshold within a predetermined time interval after allocating the call classifier, the call classifier terminates the monitoring step.

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11-34. (Canceled).

35. (New) A switching center, comprising:
a plurality of first ports for use in coupling the switching center to a plurality of local user devices;
5 a plurality of second ports for use in coupling the switching center to a plurality of external transmission media, each of said plurality of external transmission media being coupled at an opposite end to another switching center within the communication network;
a switch for selectively coupling individual first ports to individual second ports within the switching center for use in establishing communication connections between local user devices and remote user devices in the communication network;
10 a pool of echo cancellation units that are each capable of reducing echoes received by said switching center from an external transmission medium;
a call classifier operable to detect an echo energy level from a first external transmission medium associated with a first communication connection; and
15 an allocation unit for allocating an echo cancellation unit from said pool of echo cancellation units to the first communication connection being supported by the switching center in response to detection, by the call classifier, of echo energy above a threshold level from a first external transmission medium associated with said communication connection, wherein the first communication connection is between a first local user device and a remote user device.
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36. (New) The switching center of claim 35, wherein the allocation unit is further operable to terminate allocation of the echo cancellation unit to the first communication connection in response to detection of echo energy, from the first external transmission medium, below the threshold level.

37. (New) The switching center of claim 36, wherein the call classifier is further operable to thereafter monitor the first communication connection, while the first local user device and remote user device are coupled to the first external transmission medium, for at least one of echo cancellation activity and echo energy and wherein the allocation unit reallocates an echo cancellation unit from said pool of echo cancellation units to the first communication connection in response to detection, by the call classifier, of echo energy above a threshold level.

38. (New) The switching center of Claim 35, wherein the allocation unit is further operable to thereafter monitor the first communication connection, while the first local user device and remote user device are coupled to the first external transmission medium, for at least one of echo cancellation activity and echo energy and discontinue reallocation of the echo cancellation unit to the first communication connection in response to detection of echo energy below a threshold level.

39. (New) A method for performing echo cancellation within a switching center of a communication network, said switching center being coupled to a plurality of local user devices and a plurality of external transmission media, said method comprising the steps of:

5 providing at least one echo cancellation unit and call classifier within said switching center;

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coupling a first local user device to a first external transmission medium as part of a communication connection between the first local user device and a remote user device; the call classifier detecting an echo energy level on the first external transmission
10 medium; and

in response to the call classifier detecting an echo energy level on the first external transmission medium rising to a level that is unacceptable, performing echo cancellation on the communication connection.

40. (New) The method of claim 39, further comprising:
the call classifier thereafter monitoring the first external transmission medium, while the first local user device and remote user device are connected, for echo energy; and

5 in response to the detected echo energy thereafter falling to a level that is acceptable during the communication connection between the first local user device and the remote user device, discontinuing echo cancellation of signals on the first external transmission medium.

41. (New) The method of claim 40, further comprising:
in response to echo energy on the first external transmission medium, while the first local user device and remote device are connected, again rising to a level that is unacceptable during the communication connection between the first local user device and
5 remote user device, again performing echo cancellation on the communication connection between the first local user device and remote user device.

42. (New) The method of Claim 21, further comprising:
in response to echo energy on the first external transmission medium again falling to a level that is acceptable during the communication connection between the first local

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user device and remote user device, again discontinuing echo cancellation of signals on the
5 communication connection between the first local user device and remote user device.

43. (New) The method claimed in Claim 39, wherein the at least one echo cancellation unit is a pool of echo cancellation units and further comprising:
allocating a first echo cancellation unit from the pool to the communication connection.

44. (New) The method claimed in Claim 39, when the detected echo energy fails to exceed the determined threshold within a predetermined time interval after allocating the call classifier, the call classifier terminates the monitoring step.